Readme for oxygen consumption and greenhouse gas data associated with a manuscript entitled [add title] in preparation associated with [define EXCHANGE and COMPASS]. These data were measured on a subset of soil and sediment samples collected as part of EXCHANGE’s EC1 campaign, which is documented in the ESS-DIVE package [add package and DOI]. We selected 18 kits from the EC1 campaign representing gradients of salinity, latitude, and longitude across the Chesapeake Bay and Delaware Bay regions. Each kit contained samples of sediment and soils collected along an inundation gradient at Wetland, Transition, and Upland sites, for a total of four soil/sediment sampling locations (referred to as “transect\_location” in the datasets).

We measured oxygen consumption rates using Pyroscience Firesting oxygen sensors on sediment and soil samples inundated with seawater over the course of 24 hours, which are presented in the “230417\_do\_consumption\_final.csv” dataset. Due to sensor availability limitations, DO consumption was measured on a single sample per kit/transect location combination. We also measured greenhouse gas (CO2, CH4, N2O) concentrations in sediment and soil samples in paired inundated samples (also measured for DO consumption) and non-inundated samples, each measured in triplicate (for a total of six samples per combination of kit and transect location) over the same 24-hour period that DO was measured. Greenhouse gas concentrations were measured on a Picarro gas analyzer, and converted from partial pressures to concentrations using Henry’s law in order to directly compare concentrations measured in inundated samples (i.e., concentrations in water) and non-inundated samples (i.e., concentrations in air) samples.